SEQUENCE LISTING

<110> Anderson, Marilyn, A., Lay, Fung T., Heath, Robyn L.

<120> Plant-derived molecules and genetic sequences encoding same and uses therefor

<130> 18-01

<140> not yet assigned
<141> 2002-02-08

<150> USSN 60/267,271
<151> 2001-02-08

<160> 61

<170> PatentIn version 3.0

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Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile Cys Ile Thr
1               5                   10                  15

aaa cca cca tgc aga aaa gct tgt atc agt gag aaa ttt act gat ggt      96
Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
            20                  25                  30

cat tgt agc aaa atc ctc aga agg tgc cta tgt act aag cca tgt         141
His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys
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<213>    Nicotiana alata

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Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile Cys Ile Thr
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Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
            20                  25                  30

His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys
        35                  40                  45
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<400>    9
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ctc ttt gtt gcc tat gag gtg caa gct                                   75
Leu Phe Val Ala Tyr Glu Val Gln Ala
            20                  25
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Val Phe Asp Glu Lys Met Thr Lys Thr Gly Ala Glu Ile Leu Ala Glu
1               5                   10                  15

gaa gca aaa act ttg gct gca gct ttg ctt gaa gaa gag ata atg gat      96
Glu Ala Lys Thr Leu Ala Ala Ala Leu Leu Glu Glu Glu Ile Met Asp
            20                  25                  30

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Asn
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Asn
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1               5               10              15

ctc ttt gtt gcc tat gag gtg caa gct aga gaa tgc aaa aca gaa agc       96
Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
                20              25              30

aac aca ttt cct gga ata tgc att acc aaa cca cca tgc aga aaa gct      144
Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
            35              40              45

tgt atc agt gag aaa ttt act gat ggt cat tgt agc aaa atc ctc aga      192
Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
    50              55              60

agg tgc cta tgt act aag cca tgt                                      216
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65                  70


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                20              25              30

Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
            35              40              45

Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
    50              55              60

Arg Cys Leu Cys Thr Lys Pro Cys
65                  70


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Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile Cys Ile Thr
1               5                   10                  15

aaa cca cca tgc aga aaa gct tgt atc agt gag aaa ttt act gat ggt      96
Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
                20                  25                  30

cat tgt agc aaa atc ctc aga agg tgc cta tgt act aag cca tgt gtg     144
His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys Val
            35                  40                  45

ttt gat gag aag atg act aaa aca gga gct gaa att ttg gct gag gaa     192
Phe Asp Glu Lys Met Thr Lys Thr Gly Ala Glu Ile Leu Ala Glu Glu
    50                  55                  60

gca aaa act ttg gct gca gct ttg ctt gaa gaa gag ata atg gat aac     240
Ala Lys Thr Leu Ala Ala Ala Leu Leu Glu Glu Glu Ile Met Asp Asn
65                  70                  75                  80
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<210>   16
<211>   80
<212>   PRT
<213>   Nicotiana alata

<400>   16
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1               5                   10                  15

Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
                20                  25                  30

His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys Val
            35                  40                  45

Phe Asp Glu Lys Met Thr Lys Thr Gly Ala Glu Ile Leu Ala Glu Glu
    50                  55                  60

Ala Lys Thr Leu Ala Ala Ala Leu Leu Glu Glu Glu Ile Met Asp Asn
65                  70                  75                  80
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<400>   17
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Met Ala Arg Ser Leu Cys Phe Met Ala Phe Ala Ile Leu Ala Arg Met
1               5                   10                  15
```

```
ctc ttt gtt gcc tat gag gtg caa gct aga gaa tgc aaa aca gaa agc        96
Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
            20              25              30

aac aca ttt cct gga ata tgc att acc aaa cca cca tgc aga aaa gct       144
Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
        35              40              45

tgt atc agt gag aaa ttt act gat ggt cat tgt agc aaa atc ctc aga       192
Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
        50              55              60

agg tgc cta tgt act aag cca tgt gtg ttt gat gag aag atg act aaa       240
Arg Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Glu Lys Met Thr Lys
65              70              75              80

aca gga gct gaa att ttg gct gag gaa gca aaa act ttg gct gca gct       288
Thr Gly Ala Glu Ile Leu Ala Glu Glu Ala Lys Thr Leu Ala Ala Ala
            85              90              95

ttg ctt gaa gaa gag ata atg gat aac taa ttagagatta gaagaaatta        338
Leu Leu Glu Glu Glu Ile Met Asp Asn
            100             105

aggatgcagt atcacacata ataaagtttc tacctttctt aaaagtgtag ctaatgttgt    398

gttttaattg gctttttagta gcctttttatt acactttaaa taagtgtggc acttcaatcc   458

tttgtgcaat cttgcactaa gtttatttgt gtactttttaa tgaaaatgac cttctatggt   518

ctttggttaa aaaaaaaaaa aaa                                           541
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<213> Nicotiana alata

<400> 18
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Met Ala Arg Ser Leu Cys Phe Met Ala Phe Ala Ile Leu Ala Arg Met
1               5               10              15

Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
            20              25              30

Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
        35              40              45

Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
        50              55              60

Arg Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Glu Lys Met Thr Lys
65              70              75              80

Thr Gly Ala Glu Ile Leu Ala Glu Glu Ala Lys Thr Leu Ala Ala Ala
            85              90              95

Leu Leu Glu Glu Glu Ile Met Asp Asn
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<210> 19
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taagtgtggc acttcaatcc tttgtgcaat cttgcactaa gtttatttgt gtacttttaa     180
tgaaaatgac cttctatggt ctttggttaa aaaaaaaaa aaa                          223
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<212> PRT
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<400> 20
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Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
            20                  25                  30

Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
        35                  40                  45

Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Leu Leu Arg
        50                  55                  60
Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Glu Lys Met Ile Lys
65                  70                  75                  80

Thr Gly Ala Glu Thr Leu Val Glu Glu Ala Lys Thr Leu Ala Ala Ala
            85                  90                  95

Leu Leu Glu Glu Glu Ile Met Asp Asn
            100                 105
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<210> 21
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<400> 21
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1               5                   10                  15

Leu Phe Val Thr Tyr Glu Val Glu Ala Gln Gln Ile Cys Lys Ala Pro
            20                  25                  30

Ser Gln Thr Phe Pro Gly Leu Cys Phe Met Asp Ser Ser Cys Arg Lys
            35                  40                  45

Tyr Cys Ile Lys Glu Lys Phe Thr Gly Gly His Cys Ser Lys Leu Gln
        50                  55                  60
```

```
Arg Lys Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Lys Ile Ser Ser
65              70              75              80

Glu Val Lys Ala Thr Leu Gly Glu Glu Ala Lys Thr Leu Ser Glu Val
                85              90              95

Val Leu Glu Glu Glu Ile Met Met Glu
            100             105
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<210> 22
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<212> PRT
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<400> 22
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Met Ala Asn Ser Met Arg Phe Phe Ala Thr Val Leu Leu Ile Ala Leu
1               5               10              15

Leu Val Thr Ala Thr Glu Met Gly Pro Met Thr Ile Ala Glu Ala Arg
            20              25              30

Thr Cys Glu Ser Gln Ser His Arg Phe Lys Gly Pro Cys Ser Arg Asp
        35              40              45

Ser Asn Cys Ala Thr Val Cys Leu Thr Glu Gly Phe Ser Gly Gly Arg
    50              55              60

Cys Pro Trp Ile Pro Pro Arg Cys Phe Cys Thr Ser Pro Cys
65              70              75
```

<210> 23
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<400> 23
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Met Gly Arg Ser Ile Arg Leu Phe Ala Thr Phe Phe Leu Ile Ala Met
1               5               10              15

Leu Phe Leu Ser Thr Glu Met Gly Pro Met Thr Ser Ala Glu Ala Arg
            20              25              30

Thr Cys Glu Ser Gln Ser His Arg Phe His Gly Thr Cys Val Arg Glu
        35              40              45

Ser Asn Cys Ala Ser Val Cys Gln Thr Glu Gly Phe Ile Gly Gly Asn
    50              55              60

Cys Arg Ala Phe Arg Arg Arg Cys Phe Cys Thr Arg Asn Cys
65              70              75
```

<210> 24
<211> 77
<212> PRT
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<400> 24

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Met Lys Leu Ser Met Arg Leu Ile Ser Ala Val Leu Ile Met Phe Met
1               5               10              15

Ile Phe Val Ala Thr Gly Met Gly Pro Val Thr Val Glu Ala Arg Thr
            20              25              30

Cys Glu Ser Gln Ser His Arg Phe Lys Gly Thr Cys Val Ser Ala Ser
            35              40              45

Asn Cys Ala Asn Val Cys His Asn Glu Gly Phe Val Gly Gly Asn Cys
        50              55              60

Arg Gly Phe Arg Arg Arg Cys Phe Cys Thr Arg His Cys
65              70              75
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<210> 25
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<212> PRT
<213> peptide

<400> 25
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Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile Cys Ile Thr
1               5               10              15

Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
            20              25              30

His Cys Ser Lys Leu Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys
        35              40              45
```

<210> 26
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<400> 26
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Gln Ile Cys Lys Ala Pro Ser Gln Thr Phe Pro Gly Leu Cys Phe Met
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Asp Ser Ser Cys Arg Lys Tyr Cys Ile Lys Glu Lys Phe Thr Gly Gly
            20              25              30

His Cys Ser Lys Leu Gln Arg Lys Cys Leu Cys Thr Lys Pro Cys
        35              40              45
```

<210> 27
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<212> PRT
<213> peptide

<400> 27
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Arg His Cys Glu Ser Leu Ser His Arg Phe Lys Gly Pro Cys Thr Arg
1               5               10              15

Asp Ser Asn Cys Ala Ser Val Cys Glu Thr Glu Arg Phe Ser Gly Gly
            20              25              30
```

```
Asn Cys His Gly Phe Arg Arg Arg Cys Phe Cys Thr Lys Pro Cys
        35                  40                  45
```

<210> 28
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<212> PRT
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<400> 28
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Arg Val Cys Glu Ser Gln Ser His Gly Phe His Gly Leu Cys Asn Arg
1               5                   10                  15

Asp His Asn Cys Ala Leu Val Cys Arg Asn Glu Gly Phe Ser Gly Gly
            20                  25                  30

Arg Cys Lys Gly Phe Arg Arg Arg Cys Phe Cys Thr Arg Ile Cys
        35                  40                  45
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<210> 29
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<212> PRT
<213> peptide

<400> 29
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1               5                   10                  15

Glu Ser Asn Cys Ala Ser Val Cys Gln Thr Glu Gly Phe Ile Gly Gly
            20                  25                  30

Asn Cys Arg Ala Phe Arg Arg Arg Cys Phe Cys Thr Arg Asn Cys
        35                  40                  45
```

<210> 30
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<212> PRT
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<400> 30
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Arg Ile Cys Arg Arg Arg Ser Ala Gly Phe Lys Gly Pro Cys Val Ser
1               5                   10                  15

Asn Lys Asn Cys Ala Gln Val Cys Met Gln Glu Trp Gly Glu Gly Gly
            20                  25                  30

Asn Cys Asp Gly Pro Leu Arg Arg Cys Lys Cys Met Arg Arg Cys
        35                  40                  45
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<210> 31
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<400> 31
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Gln Lys Leu Cys Gln Arg Pro Ser Gly Thr Trp Ser Gly Val Cys Gly
1               5                   10                  15
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Asn Asn Asn Ala Cys Arg Asn Gln Cys Ile Asn Leu Glu Lys Ala Arg
            20              25              30

His Gly Ser Cys Asn Tyr Val Phe Pro Ala His Lys Cys Ile Cys Tyr
        35              40              45

Phe Pro Cys
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<210>   32
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<212>   PRT
<213>   peptide

<400>   32
Arg Asn Cys Glu Ser Leu Ser His Arg Phe Lys Gly Pro Cys Thr Arg
1               5               10              15

Asp Ser Asn Cys
            20

<210>   33
<211>   51
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<400>   33
Gln Lys Leu Cys Glu Arg Pro Ser Gly Thr Trp Ser Gly Val Cys Gly
1               5               10              15

Asn Asn Asn Ala Cys Lys Asn Gln Cys Ile Asn Leu Glu Lys Ala Arg
            20              25              30

His Gly Ser Cys Asn Tyr Val Phe Pro Ala His Lys Cys Ile Cys Tyr
        35              40              45

Phe Pro Cys
    50

<210>   34
<211>   51
<212>   PRT
<213>   peptide

<400>   34
Gln Lys Leu Cys Gln Arg Pro Ser Gly Thr Trp Ser Gly Val Cys Gly
1               5               10              15

Asn Asn Asn Ala Cys Lys Asn Gln Cys Ile Arg Leu Glu Lys Ala Arg
            20              25              30

His Gly Ser Cys Asn Tyr Val Phe Pro Ala His Lys Cys Ile Cys Tyr
        35              40              45

Phe Pro Cys
    50
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```
<210>    35
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<212>    PRT
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Gln Lys Leu Cys Glu Arg Pro Ser Gly Thr Trp Ser Gly Val Cys Gly
1                   5                   10                  15

Asn Asn Asn Ala Cys Lys Asn Gln Cys Ile Asn Leu Glu Lys Ala Arg
                20                  25                  30

His Gly Ser Cys Asn Tyr Val Phe Pro Ala His Lys Cys Ile Cys Tyr
            35                  40                  45

Phe Pro Cys
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<210>    36
<211>    52
<212>    PRT
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<400>    36
Gln Lys Leu Cys Ala Arg Pro Ser Gly Thr Trp Ser Ser Gly Asn Cys
1                   5                   10                  15

Arg Asn Asn Asn Ala Cys Arg Asn Phe Cys Ile Lys Leu Glu Lys Ser
                20                  25                  30

Arg His Gly Ser Cys Asn Ile Pro Phe Pro Ser Asn Lys Cys Ile Cys
            35                  40                  45

Tyr Phe Pro Cys
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<210>    37
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<213>    peptide

<400>    37
Lys Ile Cys Arg Arg Arg Ser Ala Gly Phe Lys Gly Pro Cys Met Ser
1                   5                   10                  15

Asn Lys Asn Cys Ala Gln Val Cys Gln Gln Glu Gly Trp Gly Gly Gly
                20                  25                  30

Asn Cys Asp Gly Pro Phe Arg Arg Cys Lys Cys Ile Arg Gln Cys
            35                  40                  45


<210>    38
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<212>    PRT
<213>    peptide

<400>    38
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Lys Val Cys Arg Gln Arg Ser Ala Gly Phe Lys Gly Pro Cys Val Ser
1               5                   10              15

Asp Lys Asn Cys Ala Gln Val Cys Leu Gln Glu Gly Trp Gly Gly Gly
            20              25                  30

Asn Cys Asp Gly Pro Phe Arg Arg Cys Lys Cys Ile Arg Gln Cys
        35              40                  45
```

<210> 39
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<212> PRT
<213> peptide

<400> 39
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Lys Thr Cys Glu Asn Leu Val Asp Thr Tyr Arg Gly Pro Cys Phe Thr
1               5                   10              15

Thr Gly Ser Cys Asp Asp His Cys Lys Asn Lys Glu His Leu Leu Ser
            20              25                  30

Gly Arg Cys Arg Asp Asp Val Arg Cys Trp Cys Thr Arg Asn Cys
        35              40                  45
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<210> 40
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<212> PRT
<213> peptide

<400> 40
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Arg Val Cys Met Gly Lys Ser Ala Gly Phe Lys Gly Leu Cys Met Arg
1               5                   10              15

Asp Gln Asn Cys Ala Gln Val Cys Leu Gln Glu Gly Trp Gly Gly Gly
            20              25                  30

Asn Cys Asp Gly Val Met Arg Gln Cys Lys Cys Ile Arg Gln Cys Trp
        35              40                  45
```

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<212> PRT
<213> peptide

<400> 41
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1               5                   10              15

Asp His Asn Cys Ala Gln Val Cys Leu Gln Glu Gly Trp Gly Gly Gly
            20              25                  30

Asn Cys Asp Gly Val Ile Arg Gln Cys Lys Cys Ile Arg Gln Cys Trp
        35              40                  45
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<210> 42
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<212> PRT

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<213>  peptide

<400>  42
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1               5                   10                  15

Thr Gly His Cys
            20

<210>  43
<211>  47
<212>  PRT
<213>  peptide

<400>  43
Arg Val Cys Met Lys Gly Ser Gln His His Ser Phe Pro Cys Ile Ser
1               5                   10                  15

Asp Arg Leu Cys Ser Asn Glu Cys Val Lys Glu Glu Gly Gly Trp Thr
            20                  25                  30

Ala Gly Tyr Cys His Leu Arg Tyr Cys Arg Cys Gln Lys Ala Cys
            35                  40                  45

<210>  44
<211>  45
<212>  PRT
<213>  peptide

<400>  44
Asn Thr Cys Glu Asn Leu Ala Gly Ser Tyr Lys Gly Val Cys Phe Gly
1               5                   10                  15

Gly Cys Asp Arg His Cys Arg Thr Gln Glu Gly Ala Ile Ser Gly Arg
            20                  25                  30

Cys Arg Asp Asp Phe Arg Cys Trp Cys Thr Lys Asn Cys
            35                  40                  45

<210>  45
<211>  50
<212>  PRT
<213>  peptide

<400>  45
Leu Cys Asn Glu Arg Pro Ser Gln Thr Trp Ser Gly Asn Cys Gly Asn
1               5                   10                  15

Thr Ala His Cys Asp Lys Gln Cys Gln Asp Trp Glu Lys Ala Ser His
            20                  25                  30

Gly Ala Cys His Lys Arg Glu Asn His Trp Lys Cys Phe Cys Tyr Phe
            35                  40                  45

Asn Cys
    50
```

```
<210>   46
<211>   51
<212>   PRT
<213>   peptide

<400>   46
Lys Leu Cys Asp Val Pro Ser Gly Thr Trp Ser Gly His Cys Gly Ser
1               5                   10                  15

Ser Ser Lys Cys Ser Gln Gln Cys Lys Asp Arg Glu His Phe Ala Tyr
            20                  25                  30

Gly Gly Ala Cys His Tyr Gln Phe Pro Ser Val Lys Cys Phe Cys Lys
        35                  40                  45

Arg Gln Cys
    50

<210>   47
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<212>   PRT
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<400>   47
Glu Leu Cys Glu Lys Ala Ser Lys Thr Trp Ser Gly Asn Cys Gly Asn
1               5                   10                  15

Thr Gly His Cys Asp Asn Gln Cys Lys Ser Trp Glu Gly Ala Ala His
            20                  25                  30

Gly Ala Cys His Val Arg Asn Gly Lys His Met Cys Phe Cys Tyr Phe
        35                  40                  45

Asn Cys
    50

<210>   48
<211>   46
<212>   PRT
<213>   peptide

<400>   48
Asn Thr Cys Glu His Leu Ala Asp Thr Tyr Arg Gly Val Cys Phe Thr
1               5                   10                  15

Asn Ala Ser Cys Asp Asp His Cys Lys Asn Lys Ala His Leu Ile Ser
            20                  25                  30

Gly Thr Cys His Asp Trp Lys Cys Phe Cys Thr Gln Asn Cys
        35                  40                  45

<210>   49
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<212>   PRT
<213>   peptide

<400>   49
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Asn Leu Cys Glu Arg Ala Ser Leu Thr Trp Thr Gly Asn Cys Gly Asn
1   5   10   15

Thr Gly His Cys Asp Thr Gln Cys Arg Asn Trp Glu Ser Ala Lys His
            20   25   30

Gly Ala Cys His Lys Arg Gly Asn Trp Lys Cys Phe Cys Tyr Phe Asn
        35   40   45

Cys

<210>   50
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<212>   PRT
<213>   peptide

<400>   50
Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Ala Arg Glu Ile
1   5   10   15

Phe Thr Gly Leu Cys Ile Thr Asn Pro Gln Cys Arg Lys Ala Cys Ile
            20   25   30

Lys Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg Arg Cys
        35   40   45

Leu Cys Thr Lys Pro Cys Thr Gly Ala Glu Thr Leu Ala Glu Glu Ala
    50   55   60

Thr Thr Leu Ala Ala Ala Leu Leu Glu Glu Glu Ile Met Asp Asn
65   70   · 75

<210>   51
<211>   105
<212>   PRT
<213>   peptide

<400>   51
Met Ala Arg Ser Val Cys Phe Met Ala Phe Ala Ile Leu Ala Val Met
1   5   10   15

Leu Phe Val Ala Tyr Asp Val Glu Ala Lys Asp Cys Lys Thr Glu Ser
            20   25   30

Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
        35   40   45

Cys Ile Lys Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
    50   55   60

Arg Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Glu Lys Met Ile Lys
65   70   75   80

Thr Gly Ala Glu Thr Leu Ala Glu Glu Ala Thr Thr Leu Ala Ala Ala
            85   90   95

Leu Leu Glu Glu Glu Ile Met Asp Asn

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Leu Phe Val Ala Tyr Glu Val Gln Ala Lys Ser Thr Cys Lys Ala Glu
            20                  25                  30


Ser Asn Thr Phe Pro Gly Leu Cys Ile Thr Lys Pro Pro Cys Arg Lys
            35                  40                  45


Ala Cys Leu Ser Glu Lys Phe Thr Asp Gly Lys Cys Ser Lys Ile Leu
        50                  55                  60


Arg Arg Cys Ile Cys Tyr Lys Pro Cys Val Phe Asp Gly Lys Met Ile
65                  70                  75                      80


Gln Thr Gly Ala Glu Asn Leu Ala Glu Glu Ala Glu Thr Leu Ala Ala
                85                  90                      95


Ala Leu Leu Glu Glu Glu Met Met Asp Asn
            100                 105


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Arg Thr Cys Glu Ser Gln Ser His Arg Phe Lys Gly Pro Cys Ser Arg
1             5                   10                  15


Asp Ser Asn Cys Ala Thr Val Cys Leu Thr Glu Gly Phe Ser Gly Gly
            20                  25                  30


Arg Cys Pro Trp Ile Pro Pro Arg Cys Phe Cys Thr Ser Pro Cys
            35                  40                  45


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Arg Thr Cys Glu Ser Gln Ser His Arg Phe His Gly Thr Cys Val Arg
1             5                   10                  15


Glu Ser Asn


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Arg Thr Cys Glu Ser Gln Ser His Arg Phe Lys Gly Thr Cys Val Ser
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Ala Ser Asn Cys Ala Asn Val Cys His Asn Glu Gly Phe Val Gly Gly
            20                  25                  30

Asn Cys Arg Gly Phe Arg Arg Arg Cys Phe Cys Thr Arg His Cys
        35                  40                  45

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<212>   DNA
<213>   Nicotiana alata

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Lys Ala Cys Thr Leu Asn Cys Asp Pro Arg Ile Ala Tyr Gly Val Cys
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ccg cgt tca gaa gaa aag aag aat gat cgg ata tgc acc aac tgt tgc      96
Pro Arg Ser Glu Glu Lys Lys Asn Asp Arg Ile Cys Thr Asn Cys Cys
            20                  25                  30

gca ggc acg aag ggt tgt aag tac ttc agt gat gat gga act ttt gtt    144
Ala Gly Thr Lys Gly Cys Lys Tyr Phe Ser Asp Asp Gly Thr Phe Val
        35                  40                  45

tgt gaa gga gag tct gat cct aga aat cca aag gct tgt acc tta aac    192
Cys Glu Gly Glu Ser Asp Pro Arg Asn Pro Lys Ala Cys Thr Leu Asn
    50                  55                  60

tgt gat cca aga att gcc tat gga gtt tgc ccg cgt tca gaa gaa aag    240
Cys Asp Pro Arg Ile Ala Tyr Gly Val Cys Pro Arg Ser Glu Glu Lys
65                  70                  75                  80

aag aat gat cgg ata tgc acc aac tgt tgc gca ggc acg aag ggt tgt    288
Lys Asn Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly Thr Lys Gly Cys
                85                  90                  95

aag tac ttc agt gat gat gga act ttt gtt tgt gaa gga gag tct gat    336
Lys Tyr Phe Ser Asp Asp Gly Thr Phe Val Cys Glu Gly Glu Ser Asp
                100                 105                 110

cct aga aat cca aag gct tgt cct cgg aat tgc gat cca aga att gcc    384
Pro Arg Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp Pro Arg Ile Ala
            115                 120                 125

tat ggg att tgc cca ctt gca gaa gaa aag aag aat gat cgg ata tgc    432
Tyr Gly Ile Cys Pro Leu Ala Glu Glu Lys Lys Asn Asp Arg Ile Cys
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          130                    135                    140

acc aac tgt tgc gca ggc aaa aag ggt tgt aag tac ttt agt gat gat        480
Thr Asn Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp
145                 150                 155                 160

gga act ttt gtt tgt gaa gga gag tct gat cct aaa aat cca aag gcc        528
Gly Thr Phe Val Cys Glu Gly Glu Ser Asp Pro Lys Asn Pro Lys Ala
                        165                 170                 175

tgt cct cgg aat tgt gat gga aga att gcc tat ggg att tgc cca ctt        576
Cys Pro Arg Asn Cys Asp Gly Arg Ile Ala Tyr Gly Ile Cys Pro Leu
                180                 185                 190

tca gaa gaa aag aag aat gat cgg ata tgc acc aac tgc tgc gca ggc        624
Ser Glu Glu Lys Lys Asn Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly
                195                 200                 205

aaa aag ggt tgt aag tac ttt agt gat gat gga act ttt gtt tgt gaa        672
Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp Gly Thr Phe Val Cys Glu
        210                 215                 220

gga gag tct gat cct aaa aat cca aag gct tgt cct cgg aat tgt gat        720
Gly Glu Ser Asp Pro Lys Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp
225                 230                 235                 240

gga aga att gcc tat ggg att tgc cca ctt tca gaa gaa aag aag aat        768
Gly Arg Ile Ala Tyr Gly Ile Cys Pro Leu Ser Glu Glu Lys Lys Asn
                245                 250                 255

gat cgg ata tgc aca aac tgt tgc gca ggc aaa aag ggc tgt aag tac        816
Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr
                260                 265                 270

ttt agt gat gat gga act ttt gtt tgt gaa gga gag tct gat cct aga        864
Phe Ser Asp Asp Gly Thr Phe Val Cys Glu Gly Glu Ser Asp Pro Arg
            275                 280                 285

aat cca aag gcc tgt cct cgg aat tgt gat gga aga att gcc tat gga        912
Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp Gly Arg Ile Ala Tyr Gly
        290                 295                 300

att tgc cca ctt tca gaa gaa aag aag aat gat cgg ata tgc acc aat        960
Ile Cys Pro Leu Ser Glu Glu Lys Lys Asn Asp Arg Ile Cys Thr Asn
305                 310                 315                 320

tgt tgc gca ggc aag aag ggc tgt aag tac ttt agt gat gat gga act       1008
Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp Gly Thr
                325                 330                 335

ttt att tgt gaa gga gaa tct gaa tat gcc agc aaa gtg gat gaa tat       1056
Phe Ile Cys Glu Gly Glu Ser Glu Tyr Ala Ser Lys Val Asp Glu Tyr
                340                 345                 350

gtt ggt gaa gtg gag aat gat ctc cag aag tct aag gtt gct gtt tcc       1104
Val Gly Glu Val Glu Asn Asp Leu Gln Lys Ser Lys Val Ala Val Ser
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            20   25   30

Ala Gly Thr Lys Gly Cys Lys Tyr Phe Ser Asp Asp Gly Thr Phe Val
        35   40   45

Cys Glu Gly Glu Ser Asp Pro Arg Asn Pro Lys Ala Cys Thr Leu Asn
    50   55   60

Cys Asp Pro Arg Ile Ala Tyr Gly Val Cys Pro Arg Ser Glu Glu Lys
65   70   75   80

Lys Asn Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly Thr Lys Gly Cys
            85   90   95

Lys Tyr Phe Ser Asp Asp Gly Thr Phe Val Cys Glu Gly Glu Ser Asp
            100   105   110

Pro Arg Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp Pro Arg Ile Ala
        115   120   125

Tyr Gly Ile Cys Pro Leu Ala Glu Glu Lys Lys Asn Asp Arg Ile Cys
    130   135   140

Thr Asn Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp
145   150   155   160

Gly Thr Phe Val Cys Glu Gly Glu Ser Asp Pro Lys Asn Pro Lys Ala
            165   170   175

Cys Pro Arg Asn Cys Asp Gly Arg Ile Ala Tyr Gly Ile Cys Pro Leu
            180   185   190

Ser Glu Glu Lys Lys Asn Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly
        195   200   205

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Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp Gly Thr Phe Val Cys Glu
    210             215             220

Gly Glu Ser Asp Pro Lys Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp
225             230             235             240

Gly Arg Ile Ala Tyr Gly Ile Cys Pro Leu Ser Glu Glu Lys Lys Asn
            245             250             255

Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr
        260             265             270

Phe Ser Asp Asp Gly Thr Phe Val Cys Glu Gly Glu Ser Asp Pro Arg
    275             280             285

Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp Gly Arg Ile Ala Tyr Gly
    290             295             300

Ile Cys Pro Leu Ser Glu Glu Lys Lys Asn Asp Arg Ile Cys Thr Asn
305             310             315             320

Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp Gly Thr
            325             330             335

Phe Ile Cys Glu Gly Glu Ser Glu Tyr Ala Ser Lys Val Asp Glu Tyr
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Val Gly Glu Val Glu Asn Asp Leu Gln Lys Ser Lys Val Ala Val Ser
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Xaa Xaa Xaa Cys Xaa Xaa Xaa Cys Xaa Xaa Glu Xaa Phe Xaa Xaa Gly
            20                  25                  30


Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Cys Thr Xaa Xaa Cys
        35                  40                  45


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<211>  32
<212>  PRT
<213>  Nicotiana alata


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Met Xaa Xaa Ser Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1                 5                   10                  15

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Ala Xaa
            20                  25                  30

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1               5                   10                  15

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
            20                  25                  30

Xaa

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<212>  PRT
<213>  Nicotiana alata

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Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
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Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
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